

**Initiative on “Capacity Development to support National Drought
Management Policy”
(WMO, UNCCD, FAO, CBD and UNW-DPC)**

Drought Conditions and Management Strategies in Mozambique

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1. Background:

Due its geographical location in the tropics and subtropics, Mozambique is vulnerable to natural hazards and extreme events of meteorological origin such as droughts, floods, fire and tropical cyclones, earthquakes and tsunamis. Among all the various parts of the country, in the arid, semi-arid and dry sub-humid areas represented in Figure 1a), are the most vulnerable to droughts due to land degradation characterized by persistent loss of vegetation productivity, soils and pastures and exacerbated by its misuse (UNDP, 1992; INGC, 2009).

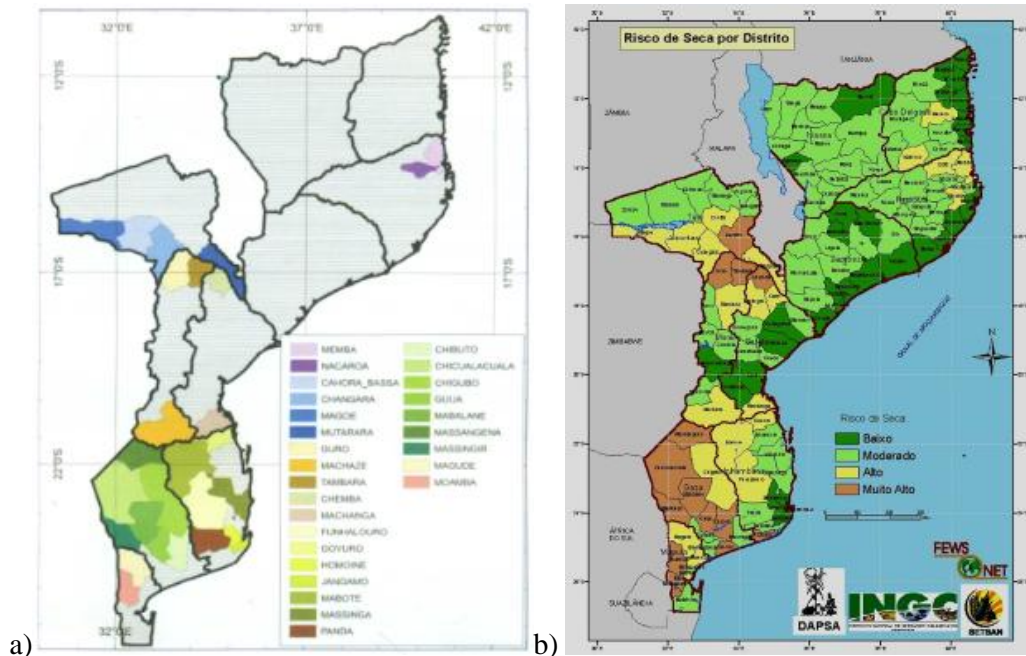


Figure 1. Distribution of arid and semi-arid regions (a) and areas at risk of drought (b) in the country. Source: (INGC, 2010).

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In the arid and semi-arid regions, especially in the southern provinces (Gaza, Inhambane and north Maputo) is considered high risk rainfed agriculture, because the mean annual rainfall is less than 500 mm, forests are undeveloped and soils predominantly sandy soils with little or no fertility. The water for human consumption, animal watering and irrigation are very scarce, adding the vulnerability for the population living in these regions (MICOA, 2002). In this region, there are some regions prone to droughts (figure 1b), where in case of occurrence of an event constitutes a chronic problem. As 81% of the population, in the country depends on rain-fed agriculture, and 95% of food crops, prolonged dry spells can lead to severe problems to the population characterized by food shortages, malnutrition, restriction in access to water and elusion of some diseases (Schmuck, 2013).

In Mozambique, droughts are affecting more people than other disaster and according to the INGC (2009) study, with the actual climate change phenomenon, events of drought are increasing in the last years. The severe droughts have been occurring at intervals of 7 to 10 years, being lower intensity droughts occurring more regularly (Schmuck, 2013). The 1991-92 drought was the worst in memory, and affected most of the southern region of Africa. According to historical data, droughts occur in southern Africa in a cyclical regime, but we still can not predict them accurately.

The following table illustrates the occurrence of drought in Mozambique since 2000 year where we can also verify that in 2005 drought affected about 1.38 million people.

Table 1: Droughts in Mozambique since 2000

Year	Deaths	Victims	Affected	Damages in crops (Ha.)	Lost Cattle
2000	0	0	126,802	0	0
2001	247	0	358,648	10,245	0
2002	11	343	901,541	19,378	0
2003	11	0	844,804	0	0
2004	92	0	539,550	3696	0
2005	21	57,176	1.378,136	31,308	0
2006	108	58,162	614,893	7,225	20,824
2007	0	12,700	422,355	3,452	0
2008	7	181	315,791	19	1,375
2009	8	0	236,948	5,398	0
2010	0	0	86,581	0	0
2012	0	0	2,750	0	0
TOTAL	505	128,562	5.828,799	80,721	22,199

Source: <http://www.desinventar.net/DesInventar/profiletab.jsp>

The information on the table above were taken from the disaster database, and can be seen that in the last ten years more than 5 million of people were affected by droughts, a considerable lost of animals (in particular cattle) and damages in crops were also registered.

After the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992, and within the implementation of the United Nations Convention to Combat Desertification (UNCCD), Mozambique became part of the UNCCD in 1997,

ratified the convention in 26th November 1996 by the Parliament and published in the Government Gazette, no. 20/96 of November. From that the Ministry of Environment (MICOA) in coordination with their stakeholder elaborated and established the National Action Plan to Combat Drought and Desertification in Mozambique (PAN CSD), whose objectives are to establish a series of actions, in close collaboration with local populations in arid, semi-arid and dry sub-humid zones, leading to reduction of the causes of the occurrence of droughts and to combat and prevent desertification (MICOA, 2002), especially in the most critical regions, i.e., the southern and central provinces.

The actions implemented under the PAN-CSD can be summarized to: Awareness; training; information and control; improvement of the economic environment; Access of drinking water; rational land use; improvement of the utilization of surface water resources; sustainable management of forest resources; optimizing the energy resources; environmental education and health. The legal framework linked to the drought management or monitoring can be found in annex 1.

2. Drought monitoring and early warning systems in Mozambique:

Mozambique has a well established early warning system (EWS) which stands for the Climate Seasonal Outlook (CSO) for rainfall, periodic evaluation of food security and nutrition, vulnerability analysis and monitoring of watersheds. The overall coordinating activities is taken by National Institute for Disaster Management (INGC) and, the monitoring activities is carried out by other institutions such as: the National Institute of Meteorology (INAM) that is responsible for observing, monitoring and dissemination of warnings and alerts on possible extremes of weather and climate events and to issue the CSO; the National Directorate of Water responsible for flood forecasting; The Technical Secretariat for Food Security and Nutrition platform (SETSAN) responsible for the food security early warning system. The ministry of Agriculture and Health are part of SETSAN where the vulnerability surveys to assess community food insecurity and requirements for emergency relief are of their responsibilities (MICOA, 2002).

The available EWS is not directed only to droughts but to all other disasters that affects the country. The drought monitoring is made during whole year especially during the rainy season, where when linked to the climate variability, it can lead to one or more consecutive years with below average of rainfall, a measure of possible occurrence of droughts, particularly during El Niño phenomenon years, which impacts the southern part of Mozambique and is characterized by low precipitation.

The INGC through the National Operating Center for Emergencies (CENOE) and other stakeholders meet together for preparing the contingency plans taking into account the CSO information provided by INAM. In case of issuance of an alert or forecast of extreme event for the upcoming season, such as drought, the INAM, DNA, MISAU, MINAG, follow the proper channels (Government of the province, district, municipality) and simultaneously to INGC/CENOE, for taking the necessary operative positions (statement of alerts), activation of UNAPROC (National civil Protection Unit).

Some initiatives have been taken place such as the AMESD Program aiming to help in drought monitoring, using satellite products but at the moment not yet established, foreseen to start during the next years.

3. Vulnerability assessment:

As stated before, Mozambique is a country whose economy is based on agriculture (23% and 22% of GDP in 2007 and 2008, respectively). It is estimated that at least 70% of the rural population are directly or indirectly linked to agricultural activity, especially women (about 60% of the workforce) and youth, being the most vulnerable sector. In peri-urban areas, suitable for agricultural production and with the market, agriculture has also contributed to absorption of hand labour, food supply to the cities and the local economy.

Another critical factor in agricultural production is the access and distribution of water throughout the growing season of crops. Adequate access of water largely determines the performance of agricultural production. In particular, semi-arid areas which is characterized by marginal rainfall amounts with long periods of dry seasons, it restricts the rainfed crop yields, unpredictable rainfall in the growth season and scarcity of potable water for humans and livestock, are already experiencing the impacts of warning and shifting of rainfall pattern (INGC 2009).

The other sector is the health one, as having nutritional deficiencies exacerbates the effects of epidemics to the most productive segment of the population leading to declines in productivity and the loss of skilled workers. Cholera and malaria disease are also common and compound peoples' already precarious living conditions.

4. Emergency relief and drought response:

The INGC has the main responsibility to coordinate the disaster risk management activities in Mozambique at national, provincial and district and local level and also has the mandate to coordinate relief activities during and after disaster in collaboration with all the main economic sectors including UN agencies, like WFP, UNDP and NGO's.

According to Schmuck (2013), the drought response is directed to humanitarian Response:

Provision and award of food Security (Agriculture, Livestock etc.): this is related to provision of basic food such as maize, beans and vegetable oil in order to prevent the death of livestock, vaccination campaigns are also sometimes carried out.

Nutrition: Feeding and Vitamin A to malnourished children, pregnant and lactating women and people affected by HIV/AIDS is undertaken, to prevent and respond to acute malnutrition supplementary. Information and awareness campaigns on healthy nutrition are also carried out.

Water Sanitation & Hygiene: In severe cases, water trucking is carried out parallel to the rehabilitation of rural water supply points and construction of additional water points. Equipment to transport water is provided to families, such as jerry-cans and buckets. To ensure the water is clean, water treatment tablets or liquid is also distributed. Key messages on diarrhea and cholera prevention are disseminated.

The provision of food aid for 6 months costs approximately US\$90 per beneficiary, the treatment of SAM costs approximately US\$195/case; treatment of MAM costs approximately US\$31 per case and for water sanitation are estimated to cost between US\$9 and US\$19 per beneficiary.

5. Practices to alleviate drought impacts:

Within INGC there is a Directorate with the mandate for Development the Arid and Semi-Arid Zones (the DARIDAS) in which with their partners have developed a guideline for Development the Arid and Semi-Arid zones. The main objective of this guideline is to serve as an orienting tool of approaches and interventions that could contribute to the well-being of the populations living in those areas (INGC, 2010).

Another practice used by the government to alleviate drought is the sensitizing the populations about the eminence of drought occurrence indicating ways for minimizing its impacts, through radio messages; Sensitizing the population to use lowlands and adoption of drought resistant crops; acquisition and distribution of seeds drought tolerant and short cycle; promotion of fruit resistant to drought to serve as diet; fostering the goats creation in areas at risk and ensure transfer of cattle at living risk in the affected regions to where are good conditions, etc.

6. The need for knowledge and skills on drought management:

- The country lacks a system or network for drought monitoring and management.
- The country needs systems or tools that help us to say whether or not we are in a drought situation and to what extent or magnitude.
- Capacity building to the national public and private institutions that fights against drought and desertification.

7. Referencies

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Annex 1

Table 2. List of legal framework related with droughts and desertification in Mozambique

Thematic	Legal framework, plans, Programs and Convention	Involved Institutions
Environment	UNFCCC; INGC Master Plan, UNCCD, PAN-CSD, NAPA, Environment Law decree 21/97; Environment Policy resolution 5/95 of 3 rd August.	UNFCCC, UNCCD, INGC, MICOA
Poverty Reduction	PARPA-II Action Plan for the Reduction 2006-2009	Ministry of Plan and Finance
Agriculture	PROAGRI National Agriculture Programme aimed at agricultural development	Ministry of Agriculture (MINAG)
Forestry and Wildlife	Forestry and Wildlife Law decree 10/99 of 7 th July; Policy and Strategy for Development of Forest and wild life, Resolution 8/97	MINAG
Water	National Water Policy, Resolution 7/95 of 8 th August; Water Law , decree 16/91	Ministry of Public Works and Housing (MOPH) – National Directorate of Water -DNA
Health	SSEP Strategic-Plan for the Health Sector	Ministry of Health-MISAU